

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended) A polishing apparatus comprising:

a polishing section having a turntable with a polishing surface, ~~and~~ a top ring for holding a substrate and pressing the substrate against said polishing surface to polish a surface having a semiconductor device thereon, and a sensor for detecting exposure of a barrier layer on the substrate during polishing;

a cleaning section for cleaning at least a polished surface of the substrate which has been polished, said cleaning section having an electrolyzed water supply device for supplying electrolyzed water to the polished surface of the substrate to form a metal-oxide film on the polished surface of the substrate and a diluted hydrofluoric acid supply device for supplying diluted hydrofluoric acid to the polished surface of the substrate to dissolve the metal-oxide film formed on the polished surface of the substrate and remove the metal-oxide film from the polished surface of the substrate; and

a transfer robot for transferring the substrate from said polishing section to said cleaning section after exposure of the barrier layer on the substrate is detected by said sensor; and

a measuring device for monitoring pH or ion concentration of said electrolyzed water.

Claim 2 (Previously Presented) A polishing apparatus according to claim 1, further comprising an additional electrolyzed water supply device for supplying said electrolyzed water to a back surface opposite to the polished surface of the substrate.

Claim 3 (Original) A polishing apparatus according to claim 1, further comprising an ultrasonic transducer for applying ultrasonic vibrations to said electrolyzed water before supplying said electrolyzed water to the substrate.

Claim 4 (Canceled)

Claim 5 (Original) A polishing apparatus according to claim 1, wherein the substrate has a copper layer thereon.

Claim 6 (Currently Amended) A polishing apparatus comprising:

a polishing section for polishing a surface of a substrate by holding the substrate and pressing the substrate against a polishing surface, the surface of the substrate having a semiconductor device thereon, said polishing section having a sensor for detecting exposure of a barrier layer on the substrate during polishing;

a cleaning section for cleaning at least a polishing surface of the substrate, said cleaning section having an electrolyzed water supply device for supplying electrolyzed water to the polished surface of the substrate to form a metal-oxide film on the polished surface of the substrate and a diluted hydrofluoric acid supply device for supplying diluted hydrofluoric acid to the polished surface of the substrate to dissolve the metal-oxide film formed on the polished surface of the substrate and remove the metal-oxide film from the polished surface of the substrate; and

a transfer robot for transferring the substrate from said polishing section to said cleaning section after exposure of the barrier layer on the substrate is detected by said sensor; and

a measuring device for monitoring pH or ion concentration of said electrolyzed water.

Claim 7 (Currently Amended) A polishing apparatus comprising:

a first polishing surface for conducting a primary polishing of a surface of a substrate by holding the substrate and pressing the substrate against said first polishing surface, the surface of the substrate having a semiconductor device thereon;

a cleaning section for cleaning at least a polished surface of the substrate, said cleaning section having an electrolyzed water supply device for supplying electrolyzed water to the polished surface of the substrate to form a metal-oxide film on the polished surface of the substrate and a diluted hydrofluoric acid supply device for supplying diluted hydrofluoric acid to the polished surface of the substrate to dissolve the metal-oxide film formed on the polished surface of the substrate and remove the metal-oxide film from the polished surface of the substrate;

a second polishing surface for conducting a secondary polishing of the polished surface of the substrate by holding the substrate and pressing the substrate against said second polishing surface; and

a sensor for detecting exposure of a barrier layer on the substrate during the primary polishing or the secondary polishing;

a transfer robot for transferring the substrate from said first polishing section or said second polishing section to said cleaning section after exposure of the barrier layer on the substrate is detected by said sensor; and

a measuring device for monitoring pH or ion concentration of said electrolyzed water.

Claim 8 (Currently Amended) A polishing apparatus comprising:

a polishing section for polishing a surface of a substrate by holding the substrate and pressing the substrate against a polishing surface, the surface of the substrate having a semiconductor device thereon, said polishing section having a sensor for detecting exposure of a barrier layer on the substrate during polishing;

an electrolyzed water supply device for supplying electrolyzed water to a polished surface of the substrate to form a metal-oxide film on the polished surface of the substrate;

a diluted hydrofluoric acid supply device for supplying diluted hydrofluoric acid to the polished surface of the substrate after supplying said electrolyzed water to dissolve the metal-oxide film formed on the polished surface of the substrate and remove the metal-oxide film from the polished surface of the substrate; and

a transfer robot for transferring the substrate from said polishing section to said cleaning section after exposure of the barrier layer on the substrate is detected by said sensor; and

a measuring device for monitoring pH or ion concentration of said electrolyzed water.

Claim 9 (Previously Presented) A polishing apparatus according to claim 1, further comprising an electrolyzed water generator for generating said electrolyzed water.

Claim 10 (Previously Presented) A polishing apparatus according to claim 9, further comprising a controller for controlling the pH or the ion concentration of said electrolyzed water generated by said electrolyzed water generator.

Claim 11 (Previously Presented) A polishing apparatus according to claim 6, further comprising an electrolyzed water generator for generating said electrolyzed water.

Claim 12 (Previously Presented) A polishing apparatus according to claim 11, further comprising a controller for controlling the pH or the ion concentration of said electrolyzed water generated by said electrolyzed water generator.

Claim 13 (Previously Presented) A polishing apparatus according to claim 7, further comprising an electrolyzed water generator for generating said electrolyzed water.

Claim 14 (Previously Presented) A polishing apparatus according to claim 13, further comprising a controller for controlling the pH or the ion concentration of said electrolyzed water generated by said electrolyzed water generator.

Claim 15 (Previously Presented) A polishing apparatus according to claim 8, further comprising an electrolyzed water generator for generating said electrolyzed water.

Claim 16 (Previously Presented) A polishing apparatus according to claim 15, further comprising a controller for controlling the pH or the ion concentration of said electrolyzed water generated by said electrolyzed water generator.